M3U

M3U (*MP3 URL*[1][2]) is a computer file format for a multimedia playlist. One common use of the M3U file format is creating a single-entry playlist file pointing to a stream on the Internet. The created file provides easy access to that stream and is often used in downloads from a website, for emailing, and for listening to Internet radio.

M3U	
Filename extensions	`.m3u, .m3u8`
Internet media type	various; see § Internet media types
Initial release	c. 1996
Type of format	Playlist
Extended to	HTTP Live Streaming playlist

Although originally designed for audio files, such as MP3, it is commonly used to point media players to audio and video sources, including online sources. M3U was originally developed by Fraunhofer for use with their WinPlay3 software,[3] but numerous media players and software applications now support the format.

Careless handling of M3U playlists has been the cause of vulnerabilities in many music players such as VLC media player,[4] iTunes,[5] Winamp,[6] and many others.[7]

File format

There is no formal specification for the M3U format; it is a *de facto* standard.

An M3U file is a plain text file that specifies the locations of one or more media files. The file is saved with the "m3u" filename extension if the text is encoded in the local system's default non-Unicode encoding (e.g., a Windows codepage), or with the "m3u8" extension if the text is UTF-8 encoded.[8]

Each entry carries one specification. The specification can be any one of the following:

- an *absolute local pathname*; e.g., C:\My Music\Heavysets.mp3
- a *local pathname* relative to the M3U file location; e.g. Heavysets.mp3
- a URL

Each entry ends with a line break which separates it from the following one. Furthermore, some devices only accept line breaks represented as `CR LF`, but do not recognize a single `LF`.

Extended M3U

The M3U file can also include comments, prefaced by the "#" character. In **extended M3U**, "#" also introduces extended M3U directives which are terminated by a colon ":" if they support parameters.

M3U extensions

Directive	Description	Example	Required
`#EXTM3U`	file header, must be the first line of the file	`#EXTM3U`	1×
`#EXTINF:`	track information: runtime in seconds then optional display title of the following resource	`#EXTINF:123,Artist Name - Track Title`↵`artist - title.mp3`	No
	additional properties as key-value pairs	`#EXTINF:123 logo="cover.jpg",Stream Title`↵`http://example.org/live.strm`	No
`#PLAYLIST:`	playlist display title	`#PLAYLIST:Music TV`	1×
`#EXTGRP:`	begin named grouping	`#EXTGRP:Foreign Channels`	No
`#EXTALB:`	album information, title in particular	`#EXTALB:Album Title (2009)`	1×
`#EXTART:`	album artist	`#EXTART:Various`	1×
`#EXTGENRE:`	album genre	`#EXTGENRE:Jazz Fusion`	1×
`#EXTM3A`	playlist for tracks or chapters of an album in a single file	`#EXTM3A`	1×
`#EXTBYT:`	file size in bytes	`#EXTBYT:34124`	No
`#EXTBIN:`	binary data follows, usually concatenated MP3s	`#EXTBIN:`	No
`#EXTALBUMARTURL:`	url of album art image	`#EXTALBUMARTURL:https://example.com/a1b2c3d4.jpg`	No

Apple used the extended M3U format as a base for their HTTP Live Streaming (HLS)[12] which was documented in an Independent Submission Stream RFC in 2017 as RFC 8216 (https://tools.ietf.org/html/rfc8216) .[13] Therein, a *master playlist* references segment playlists which usually contain URLs for short parts of the media stream. Some tags only apply to the former type and some only to the latter type of playlist, but they all begin with `#EXT-X-`.

HLS M3U extensions

Directive	Example	Description
`#EXT-X-START:`	`TIME-OFFSET=0`	
`#EXT-X-INDEPENDENT-SEGMENTS`	Toggle without parameters	
`#EXT-X-PLAYLIST-TYPE:`	`VOD` or `EVENT`	
`#EXT-X-TARGETDURATION:`	`10`	The maximum Media Segment duration in seconds
`#EXT-X-VERSION:`	`4`	
`#EXT-X-MEDIA-SEQUENCE:`	`0`	The Media Sequence Number of the first Media Segment appearing in the playlist file
`#EXT-X-MEDIA:`	`NAME="English", TYPE=AUDIO, GROUP-ID="audio-stereo-64", LANGUAGE="en", DEFAULT=YES, AUTOSELECT=YES, URI="english.m3u8"`	
`#EXT-X-STREAM-INF:`	`BANDWIDTH=1123000, CODECS="avc1.64001f,mp4a.40.2"`	Parameters have either one combined value or one per stream, separated by commas
`#EXT-X-BYTERANGE:`	`1024@256000`	
`#EXT-X-DISCONTINUITY`	toggle without parameters	The segment represents the start of a new period
`#EXT-X-DISCONTINUITY-SEQUENCE:`	`2`	Indicates start of numbering of periods
`#EXT-X-GAP`	toggle without parameters	The segment represents a "spacer" before a new period
`#EXT-X-KEY:`	`METHOD=NONE`	Indicates encryption method used and decryption key
`#EXT-X-MAP:`	`URI=MediaInitializationSection`	
`#EXT-X-PROGRAM-DATE-TIME:`	`2010-02-19T14:54:23.031+08:00`	ISO 8601 format
`#EXT-X-DATERANGE:`	`ID=foo`	

`#EXT-X-I-FRAMES-ONLY`	i-frame Toggle without parameters	
`#EXT-X-SESSION-DATA:`	`DATA-ID=com.example.movie.title`	
`#EXT-X-SESSION-KEY:`		
`#EXT-X-ENDLIST`	End-of-list signal without parameters	

M3U8

The Unicode version of M3U is M3U8, which uses UTF-8-encoded characters. M3U8 files are the basis for the HTTP Live Streaming (HLS) format originally developed by Apple to stream video and radio to iOS devices, and which is now a popular format for adaptive streaming in general.

The 2015 proposal for the HLS playlist format uses UTF-8 exclusively and does not distinguish between the "m3u" and "m3u8" file name extensions.[14]

Internet media types

The only Internet media type registered for M3U and M3U8 is `application/vnd.apple.mpegurl`, registered in 2009 and only referring to the playlist format as used in HLS applications.[15][16]

The current proposal for the HLS playlist format acknowledges two media types which it treats as equivalent: `application/vnd.apple.mpegurl` and `audio/mpegurl`.[14] Likewise, these are the two types recommended for HLS use by Microsoft.[17]

For non-HLS applications, no media types were standardized or registered with the IANA, but a number of media types are nonetheless associated with the historical and ongoing use of the M3U and M3U8 formats for general playlists:

- `application/mpegurl`
- `application/x-mpegurl`
- `audio/mpegurl`
- `audio/x-mpegurl`[1][2]

These types, plus `application/vnd.apple.mpegurl` and `application/vnd.apple.mpegurl.audio`, are supported for HLS applications by (for example) Microsoft's Windows 10[17] and Internet Explorer 9,[18] and LG's WebOS.[19]

Examples

Example 1

This is an example of an extended M3U file on the Windows platform. Sample.mp3 and Example.ogg are the media files. 123 and 321 are the lengths in seconds.[20] A length of -1 or 0 may be used when the media file is a streaming file, as there is no actual, predefined length value. The value after the length is the title to be shown, which is generally the same as the location of the file which is on the second line. On the macOS and Linux platforms, Unix paths are used.

```
#EXTM3U

#EXTINF:123, Sample artist - Sample title
C:\Documents and Settings\I\My Music\Sample.mp3

#EXTINF:321,Example Artist - Example title
C:\Documents and Settings\I\My Music\Greatest Hits\Example.ogg
```

Example 2

This example shows how to create an m3u file linking to a specified directory (for example, a flash drive, or CD-ROM). The m3u file should contain only one string: the path to the directory. After starting, the media player will play all contents of the directory:

```
C:\Music
```

Example 3

Here is another example, using relative format. The M3U file is placed in the same directory as the music, and directories must be preserved when moving the playlist to another device if subdirectories are used. This method is more flexible, as it does not rely on the file path staying the same.

This is the same file as above, saved as sample.m3u in C:\Documents and Settings\User\My Music\

```
#EXTM3U
```

```
#EXTINF:123, Sample artist - Sample title
Sample.mp3

#EXTINF:321,Example Artist - Example title
Greatest Hits\Example.ogg
```

This format in an M3U allows copying to another device for playback. All files and directories referred to must also be copied.

Example 4

Here is a mixed example:

```
Alternative\Band - Song.mp3
Classical\Other Band - New Song.mp3
Stuff.mp3
D:\More Music\Foo.mp3
..\Other Music\Bar.mp3
http://www.example.com:8000/Listen.mp3
http://www.example.com/~user/Mine.mp3
```

Notes:

- Alternative and Classical are sub-directories of the directory that this playlist is stored in.
- "Song" and "New Song" are in sub-directories of the directory that this playlist is stored in.
- "Stuff" is in the same directory that the playlist is stored in.
- "Foo" is in the specified (Windows) volume and directory, which may or may not be the same directory the playlist is in.
- "Bar" is in a different directory at the same level as the playlist directory. The double-dots reference the parent directory of the playlist directory, then into the sub-directory "Other Music" to reach "Bar".
- "Listen" is a Shoutcast stream.
- "Mine" is an MP3 stored on a web server.

Example 5

References to other M3U playlists, for example, are generally not well-supported.

```
AnotherPlayList.m3u
```

Example 6

The following is an example of an M3U playlist file for "Jar of Flies" album by "Alice in Chains" that was created by Mp3tag with the following custom option settings:[21][22][23]

- playlist extended info format = `"%artist% - %title%"`
- playlist filename format = `"%artist%_%album%_00_Playlist.m3u"`
- tag to filename conversion format = `"%artist%_%album%_$num(%track%,2)_%title%"`

```
#EXTM3U
#EXTINF:419,Alice in Chains - Rotten Apple
Alice in Chains_Jar of Flies_01_Rotten Apple.mp3
#EXTINF:260,Alice in Chains - Nutshell
Alice in Chains_Jar of Flies_02_Nutshell.mp3
#EXTINF:255,Alice in Chains - I Stay Away
Alice in Chains_Jar of Flies_03_I Stay Away.mp3
#EXTINF:256,Alice in Chains - No Excuses
Alice in Chains_Jar of Flies_04_No Excuses.mp3
#EXTINF:157,Alice in Chains - Whale And Wasp
Alice in Chains_Jar of Flies_05_Whale And Wasp.mp3
#EXTINF:263,Alice in Chains - Don't Follow
Alice in Chains_Jar of Flies_06_Don't Follow.mp3
#EXTINF:245,Alice in Chains - Swing On This
Alice in Chains_Jar of Flies_07_Swing On This.mp3
```

Software

Tag editors

The following tag editor software allows users to edit the ID3 tags in MP3 files, and has support for creating M3U files.

Linux

- Kid3, Puddletag.

Windows

- Mp3tag, Puddletag.

Media players

The following media player software supports playing M3U files.

Multi-platform

Programs	Platforms				
	Windows	macOS	Linux	Android	Other
Amarok	Yes	No	Yes	No	No
Audacious	Yes	No	Yes	No	No
Banshee	Yes	Yes	Yes	No	Yes
Clementine	Yes	Yes	Yes	No	Yes
GNOME Videos	No	No	Yes	No	No
Kodi	Yes	Yes	Yes	Yes	Yes
MOC (Music on Console)	No	No	Yes	No	Yes
MPlayer	Yes	Yes	Yes	Yes	Yes
mpv	Yes	Yes	Yes	Yes	Yes
VLC media player	Yes	Yes	Yes	Yes	Yes
iTunes	Yes	Yes	No	No	No

Android

- Astro Player,[24][25][26] Kodi, N7Player,[27][28] Musicolet[29]

macOS

- Music, QuickTime Player, IINA

Nintendo

- New Nintendo 3DS (including XL and 2DS XL variants) with Internet Browser app
- Nintendo Switch with the YouTube (site-specific) app
- Wii U with the Internet Browser or YouTube app

Windows

- foobar2000, JRiver Media Center, JuK, MediaMonkey, PotPlayer, Winamp, Windows Media Player, XMPlay[30]

See also

- List of tag editors

Other playlist file formats

- PLS - SHOUTcast
- XSPF - Xiph.Org Foundation

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External links

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